

### III. Transportation

#### Introduction

July 6, 2004

The existing conditions along Sunset Avenue within the study area are indicative of the cause and effect relationship that exists between land use and transportation. As transportation facilities are enhanced to increase capacity and improve level-of-service, land uses that rely on ready access and higher traffic volumes tend to gravitate towards these facilities. Similarly, as land uses that generate higher traffic volumes become more prevalent, traffic volumes increase to the point that roadways must be widened to increase capacity and address future-year travel demands. Although the tendency is to focus on vehicular traffic, this demand also manifests itself in terms of increase pedestrian traffic, transit demand, and bicycle use. Such has been the experience along Sunset Avenue.

Given current development trends within the vicinity of the study area, no substantive changes along Sunset Avenue are anticipated in order to increase its traffic carrying capacity. As a result, the Transportation element of the Sunset Avenue Corridor Plan primarily focuses on items related to traffic operations within the corridor and efforts to improve multi-modal access. With this in mind, efforts were focused on understanding current travel demands and operational characteristics along Sunset Avenue, the access needs of the existing and anticipated land uses within the study area, strategies to maintain the traffic carrying capacity of the roadway, and traffic safety.

#### Existing Conditions

The 1.2-mile section of Sunset Avenue in this Plan (from Winstead Avenue to Forest Hill Avenue/Buck Leonard Boulevard) originally served as US 64. Since most long distance trips are now facilitated by US 64 Bypass, the function of Sunset Avenue has changed. Although Sunset Avenue is no longer designated as a US Route, it remains a major commuter route for persons living and working in the study area.

To understand Sunset Avenue in terms of its role within the transportation system, it is important to understand its functional classification. Function is the intended purpose of a street, and functional clas-

#### Goal

A transportation system that improves vehicular flow, expands public transportation services, enhances maintenance and appearance of roadways, increases travel ways for pedestrians and bicyclists and promotes traffic safety" (Chapter 5, p.11).  
*Together Tomorrow-Tier 1  
Smart Growth Comprehensive  
Plan*



US 64 Bypass



sification is the grouping of streets and highways into classes, or systems, according to the character of service they are intended to provide. The three functional classifications of streets are arterial, collector and local. Since roads and streets do not function independently, the classification system must appraise the entire system-wide network.

Sunset Avenue is functionally classified as an arterial facility or a major thoroughfare. Arterials are the highest classification of streets and highways, meaning the streets serve to move a large volume of traffic at a faster rate than other smaller streets. The amount of traffic on Sunset Avenue has been measured and averaged on an annual basis to be approximately 21,000 vehicles per day (vpd) over the study area (see Map III-a). The range of traffic counts varies from 18,000 vpd at the east end to 24,000 vpd at the west end of the study area. The estimated traffic volume on Sunset Avenue in the year 2025 is forecasted to be 28,000 vpd.

### **Physical and Operational Characteristics**

The physical characteristics of Sunset Avenue are typical of many urban arterial streets. Traffic is served by two lanes of travel provided in each direction, and a center lane dedicated to left turns. With travel lanes approximately 11 feet wide, the total cross section measures 60 feet from the back of curb to the back of curb on the opposite side. The right-of-way (r-o-w), however, varies from 75 feet to 105 feet, with a majority of this facility within a 100-foot r-o-w. In terms of horizontal and vertical geometrics, the roadway has very little elevation change, and the road is practically straight. Due to the traffic volumes and other operational conditions, parking is not allowed curb side on the street. These physical conditions lend the road to facilitating high traffic volumes at a high speed.

The majority of the corridor has a posted speed limit of 45 miles per hour (mph), but the speed limit changes to 35 mph for a short section on the east end as you approach Forest Hill Avenue. The frequency of intersections and driveways, however, significantly affects the motorist's ability to maintain the posted speed limit. This is particularly true during congested peak hours of travel.

The study section of Sunset Avenue includes fourteen intersections or nodes (the crossing of two or more transportation links). The two

anchor nodes of the study are the intersections of major arterials (Sunset Avenue/Winstead Avenue and Sunset Avenue/Buck Leonard Boulevard). The remaining intersections are nodes where streets of lower functional classification cross Sunset Avenue, including Zebulon Road, a minor arterial, and Forest Hill Avenue, Englewood Drive and Jones Road, collector streets. The local streets crossing Sunset are Stony Creek Drive, Tyson Avenue, Timberlane Drive, Patterson Drive, Clifton Road, Bulluck Avenue, Circle Drive, Greenwood Avenue, and Crescent Drive.

Traffic at four of the intersections (Winstead Avenue, Englewood Drive, Circle Drive, and Forest Hill Avenue) is controlled by fully-actuated traffic signals. All of the signals within this study corridor have a pre-emption feature that allows fire and rescue vehicles responding to a call to proceed through the traffic light with a green signal light. In addition to a pre-emption feature, a Safe-Light camera is installed at the Sunset Avenue/Circle Drive intersection to cite vehicles running red lights in the westbound traffic lanes. The larger overhead street sign mounted on the traffic signal support wire is another enhanced feature at each of the four signalized intersections.

Transportation officials use the volume to capacity ratio (V/C) as a gross measurement of traffic congestion. The estimated practical capacity of the existing five-lane cross section today is approximately 39,400 vpd. The current V/C ratio for Sunset Avenue is approximately 0.58 for an average day. A V/C ratio less than 1.0 indicates the capacity of the road is sufficient to serve the number of vehicles on the road. Nonetheless, congestion can build to an unsatisfactory peak during the morning and evening rush hours. Noonday traffic can also be so congested that the level of service of the road becomes very poor. The Engineering Department performs travel time studies on Sunset Avenue to monitor the change in travel time at various hours of the day (see table in the Appendix). In general, an increase in travel time should correlate to an increase of the V/C ratio.

### **Accident Experience**

Safety is always a major concern of street and highway users. The number of traffic crashes on Sunset Avenue has declined in recent years from 112 in 1999 to 88 in 2003 (See Traffic Crash





Data in the Appendix). However, the Sunset Avenue/Winstead Avenue intersection has averaged 23 crashes per year over the last five years and routinely ranks in the Top Ten Signalized Crash Locations in Rocky Mount. In 2001 it ranked number one and in 2003 it ranked second with 29 crashes. There has been one traffic fatality on this study corridor since 1998.

On Sunset Avenue as within the City, the rear end traffic crash is the most frequent type of collision. The large volume of traffic, including trucks and commercial vehicles, using the numerous driveways requires the driver to stay back a safe distance from the leading vehicle. In addition, motorists must be alert to stopped vehicles in the travel lane (e.g. transit buses, utility trucks, and school buses). The City's garbage trucks make stops on this section of Sunset Avenue on Thursdays and Fridays. The boarding of children onto school buses in front of the Sunset Avenue multifamily apartment complexes occurs regularly during the school year, and the school bus activity around Englewood Elementary school is a unique traffic pattern to be accommodated.

### **Multi-modal Features**

There is no improved sidewalk surface on either side of Sunset Avenue within the bounds of this study area. The lack of a sidewalk makes walking along Sunset Avenue very challenging, and crossing Sunset Avenue is more difficult at the intersections without marked crosswalks or pedestrian crossing signals. At Sunset Avenue and Englewood Drive there are marked crosswalks which serve the school children walking to and from Englewood Elementary School.



The City has established a Sidewalk Program designed to construct new sidewalks along thoroughfares. This effort culminated in the development of the City's Ten Year Sidewalk Priority List. The two segments of Sunset Avenue on the north side from Stony Creek Drive to Jones Road and from Jones Road to Englewood Drive are included in Year 5 of the priority list.

Transit service is also provided along Sunset Avenue. Tar River Transit operates Route 7 on this section of Sunset Avenue from Buck Leonard Boulevard to Winstead Avenue six days per week. The route originates downtown at the bus station and goes to the

Nash Health Care Systems campus via Sunset Avenue. Within the study area, eleven bus stops have been designated with five on the west bound side and six on the east bound side (see Map III-a). The average headway or time between buses is one hour. The average ridership on the Sunset route is 225 per day.

The bicycle is another mode of travel and represents another user of Sunset Avenue. Since only skilled and experienced riders should ever consider biking on a busy corridor like Sunset Avenue, the number of cyclists there is few. Sunset Avenue is not designated as a bike route, and thus this corridor does not include signage, pavement markings, or a wide lane to facilitate bicycle use.

### **Programmed Improvements in the Vicinity of the Study Area**

The North Carolina Department of Transportation (NCDOT) programs transportation projects to be completed across the State over a seven year period. This list of multi-modal projects is known as the Transportation Improvement Program (TIP). Projects programmed in the 2004-2010 TIP with potential implications for Sunset Avenue include:

- Project U-3331, the widening of Country Club Road from Zebulon Road to Jeffrey's Road to be built in the federal fiscal year 2005.
- Project U-4019, the widening of Winstead Avenue from Sunset Avenue to Hunter Hill Road in FFY 2007.

As these projects are completed and additional future improvements are made nearby, the traffic conditions on Sunset Avenue will improve. Improvements to the neighboring road facilities like increased capacity and additional connectivity will provide secondary benefits to Sunset Avenue such as less congestion.

### **Guiding Principles**

The staff used the set of guiding principles presented in Chapter I as the Sunset Avenue Corridor Plan was developed. The principles with an emphasis on transportation included:

- To provide a safer transportation corridor
- To protect the traffic carrying capacity and efficiency of arterials
- To consolidate driveways where possible and to create adequate spacing between driveways







- To promote a multi-modal transportation network by facilitating the needs of transit patrons, bicyclists, and pedestrians

As the Plan was developed these principles helped the staff and the participants in the public involvement process to gather information and make decisions about how the corridor should support the goals and objectives of the community (see the Parcel Inventory in the Appendix).



At the four public meetings, the staff presented information about the corridor and solicited input from the public and local land owners. Details of the corridor's transportation attributes and related land use facts were shared in these meetings. The meeting process was focused on developing a vision of how the community would like to see Sunset Avenue, and resulted in the development of a series of recommended action items. These action items are discussed in more detail in the following section of this Plan.



### Recommendations

Based on input received from the public during development of the transportation element of the Plan, there was consensus that no drastic changes to Sunset Avenue are necessary. As a result, the context of the discussions at the public meetings tended to focus on operational concerns within the corridor, how to improve multi-modal access, and how to improve traffic safety. Although not directly related to transportation, there was also some discussion at the public meetings concerning landscaping and aesthetics. Due to the variety of issues discussed, the study recommendations have been grouped into several categories including Roadway, Pedestrian, Transit, Bicycle, and Other.

#### Roadway

At the public meetings, concerns regarding travel speeds along Sunset Avenue were expressed by the attendees. Although, the general consensus at the meetings, and as verified by the surveys completed by those attending the kick-off meeting on March 25, 2004 is that the posted speed limit is appropriate, speeding concerns were a common theme at each of the public meetings. Acknowledging that excessive speed is a major contributor to traffic

crashes, it is recommended that the City work with the NCDOT to re-evaluate the appropriateness of the existing posted speed limit. It is also suggested that the limits of the 35 mph zone on the eastern end of the study area be re-evaluated and that more signage be provided.

Citizens also expressed safety concerns as well as aesthetic issues associated with the landscaped median at the eastern end of the study area. The choice of landscape materials and the height of the existing vegetation represented a common concern at the public meetings. Sight distance problems attributed to the vegetation within the median were also cited by some of those in attendance. As a result, it is recommended that an overlay zone be developed to update and/or enhance the landscaping associated with the median west of Forest Hill Avenue (this is discussed in more depth in the next chapter). In addition to aesthetic concerns, the overlay zone should focus on safety concerns, particularly as it relates to the anticipated level of maintenance of the landscaping.

Englewood Elementary School is a large traffic generator within this section of Sunset Avenue. As a result, there are a variety of transportation related concerns associated with the impact of this facility on Sunset Avenue and the intersecting side streets, as well as the access needs which accompany an elementary school. One such example includes the use of Patterson Drive for one-way traffic operations during school hours. The effect that the one-way traffic has on the property owners (commercial and residential) adjacent to the school should be evaluated. More specifically, efforts should focus on evaluating other alternatives that would address the needs of the school and yet minimize the impact on access for the adjacent properties.

Entering Sunset Avenue from the non-signalized intersections and private driveways is difficult due to travel speeds and traffic volumes along Sunset Avenue, especially left turns onto Sunset Avenue during peak travel hours. In addition to the increased level of frustration which results for these drivers, the tendency for these drivers to dart out onto Sunset Avenue to avoid these delays is a safety concern. The staff should determine if right-in and right-out turn restrictions similar to that at Stony Creek Drive

“Streets in cities serve many purposes besides carrying vehicles, and city sidewalks ---- the pedestrian parts of the streets ---- serve many purposes besides carrying pedestrians” (p.29)

*The Death and Life of Great American Cities* Jane Jacobs, 1961



Private parking which is shared and enters from the secondary streets is the preferred design configuration to improve safety along Sunset Avenue.



The cross walk at Sunset and Zebulon/Englewood is the only one in the plan area.



Some sites have limited opportunity for the addition of sidewalks.



(or through the use of a median) are feasible for other intersections along Sunset Avenue. While such turn restrictions will prohibit left turns from a side street (or driveway), limiting the number of conflict points along Sunset Avenue would be a major step forward towards improving traffic safety.

The Engineering Department staff should continue to make travel time surveys to monitor traffic operations on Sunset Avenue. The information collected should be used to fine tune the coordination of the four existing signalized intersections.

It is also recommended that the City evaluate the use of mast arms to support traffic signals in lieu of wood poles and span wire. The mast arm system is generally considered an aesthetic improvement, but it is more costly. Within a gateway corridor like Sunset Avenue, however, the general consensus was that the use of mast arms in lieu of wood poles to improve aesthetics may be an appropriate expense.

### **Pedestrian**

Safely crossing the street on foot during peak travel periods is a challenge along Sunset Avenue. With this in mind, it is recommended that the City evaluate the feasibility of installing a median or a pedestrian island at those crosswalks located at a signalized intersection. These islands serve as a refuge for persons stopped in the middle of the road when crossing Sunset Avenue.

The citizens of Rocky Mount continue to express the desire to have more sidewalks. The existing footpaths along Sunset Avenue demonstrate the need for sidewalks. Since sidewalks make travel safer for the motorist as well as the pedestrian; it is recommended that a 5-foot wide sidewalk be installed on both sides of Sunset Avenue.

Children walking to Englewood Elementary School from the nearby apartment complexes must cross a very busy intersection at Sunset Avenue and Englewood Drive. For this reason the citizens are interested in providing a safe facility for these young pedestrians. With this in mind, it is recommended to evaluate alternatives that would further enhance the pedestrian crosswalk adjacent to Englewood Elementary School at the intersection of Sun-



set Avenue and Englewood Drive. Technologies which improve the visibility of the crosswalk and give more warning to the motorists are examples of enhancements to be reviewed.

### Transit

The staff encourages greater use of the transit system. More transit riders will reduce the number of vehicles on the roadway, reduce congestion, and improve air quality. Improving the conditions at bus stops will encourage a larger number of people to use transit. The eleven bus stops should be studied to determine a priority system for placing improvements like paved standing surface, benches, trash receptacles, and an overhead shelter.

### Bicycle

The staff also encourages more people to use the bicycle as an alternate travel model. While only experienced riders should now cycle on Sunset Avenue, the appropriateness and feasibility of a bike facility along Sunset Avenue should be evaluated during the development of the comprehensive Rocky Mount Bicycle Plan. The City has recently been awarded a grant by the NCDOT to develop a bike plan.

### Other Recommendations

While property access must be provided to those parcels along Sunset Avenue, a large number of closely spaced driveways impedes the efficient flow of traffic, and tends to result in a high incidence of rear-end collisions. With this in mind, it is recommended that the driveways be inventoried and ones for closure be identified. Also, the staff should establish an access management policy for use within this corridor, which would address driveway spacing.

Continue to monitor and evaluate the SafeLight camera operation at Sunset Avenue and Circle Drive to determine if additional cameras would be of benefit to reduce red light running and right angle collisions.

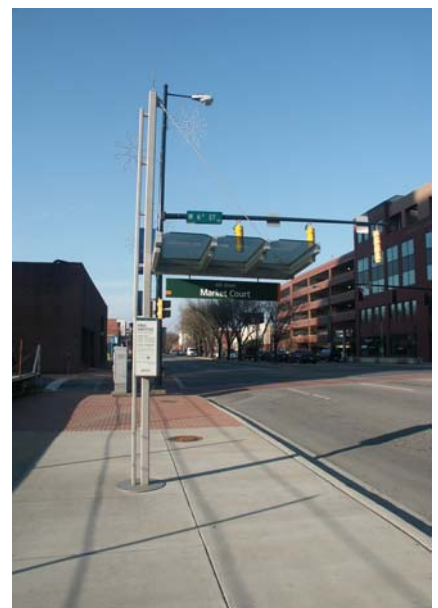
### Summary

The transportation recommendations of this plan for Sunset Avenue are briefly summarized as follows:

- Re-evaluate the appropriateness of the existing speed limit
- Develop an overlay zone to address the median issue



A transit waiting station offers some cover from a shower while giving valuable information on the bus lines. Chattanooga, TN



"Good transportation and communication are not only among the most difficult things to achieve; they are also basic necessities."(p.339)

*The Death and Life of Great American Cities* Jane Jacobs, 1961

- Investigate alternatives for the one-way street operation on Patterson Drive
- Determine if the use of right-in/right-out turn restrictions would be beneficial at additional locations on Sunset Avenue
- Continue Travel Time Studies on Sunset Avenue
- Evaluate the use of mast arm signal supports
- Evaluate the use of a pedestrian island at signalized intersections
- Install sidewalks on both sides of Sunset Avenue
- Evaluate improvements to enhance safety at the school crosswalk
- Develop a program to install bus stop amenities
- Identify bicycle treatments for Sunset Avenue in the development of the Rocky Mount Bicycle Plan
- Identify driveways which may be closed
- Establish an Access Management policy which addresses driveway spacing
- Monitor the performance of the SafeLight camera to determine if additional cameras would be beneficial

The transportation recommendations were generated by input from private citizens attending the Sunset Avenue Corridor Study public meetings and are supported by the staff. No drastic changes in the existing roadway are anticipated in the next ten to fifteen year period, but improvements to promote alternative travel modes (pedestrian, bicycle and transit) should be pursued. In the mean time, the City along with NCDOT will continue to evaluate technological advances to improve traffic operations and safety within this corridor.



October 12, 2004